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EXAMINER

GELLNER, JEFFREY L

| ART UNIT | PAPER NUMBER |
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3643

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/079,000

Applicant(s)

DING ET AL.

Examiner

Jeffrey L. Gellner

Art Unit

3643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 3643

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 12-24, 30, 32, 34-36, 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Turnblad et al. (US 5,849,320; 6th US patent doc. on Applicant's IDS).

As to Claim 1, Turnblad et al. discloses a method (col. 6 lines 7-32) of controlling the release of an agricultural active ingredient from a seed treated with the active ingredient, the method comprising providing a seed that has been treated with an agricultural active ingredient ("imidacloprid" of col. 3 lines 34-43; col. 6 lines 7-11; col. 5 lines 25-30); applying to the treated seed a film ("overcoating" of col. 6 line 17) comprising an emulsion (combination of "paraffin oil" with any water dispersed ingredient from col. 6 lines 16-32) of a polymer ("polyvinylpyrrolidone" of col. 6 line 30) in a liquid ("paraffin oil" of col. 6 line 25-28) in which both the agricultural active ingredient and the polymer have low levels of solubility (see Luvitec advertisement at page 7 for solubility of polyvinylpyrrolidone in mineral, or paraffin, oil; see page 27 of pages from Insecticide Market Trends . . . Implications" for K_{ow} value of imidacloprid); and, curing (inherent from "dried" of col. 6 line 12) the film to form a water insoluble polymer on the surface of the treated seed.

As to Claim 2, Turnblad et al. further disclose the liquid as water (col. 6 line 27).

Art Unit: 3643

As to Claims 12-16, Turnblad et al. further disclose a insecticide, a imidacloprid, as the active ingredient (see abstract; col. 3 line 42).

As to Claim 17, Turnblad et al. further disclose a fungicide, fludioxonil as the active ingredient (col. 5 line 43).

As to Claim 18, Turnblad et al. further disclose the film covering the seed ("enveloping" of col. 6 line 17).

As to Claims 19 and 20, Turnblad et al. further disclose providing the seed comprises treating the seed with the active ingredient before applying the film ("optionally applied to the coated seeds" col. 6 lines 17-20).

As to Claims 21-23, Turnblad et al. further disclose the active ingredient at between 50gm/100 kg of see and 400 gm/100 kg per seed (col. 3 lines 45-57).

As to Claim 24, Turnblad et al. further disclose the active as a liquid suspension ("oily type formulation" of col. 4 line 7).

As to Claim 30, Turnblad et al. further disclose the active as a nonaqueous ("oily type formulation" of col. 4 line 7).

As to Claim 32, Turnblad et al. further disclose the seed as corn (col. 4 line 24).

As to Claim 34, Turnblad et al. further disclose the polymer a polyester (col. 6 lines 25-33).

As to Claim 35, Turnblad et al. further disclose the polymer as polyvinylpyrrolidone (col. 6 line 31).

As to Claim 36, Turnblad et al. further disclose the polymer as PVOH (col. 6 line 31).

Art Unit: 3643

As to Claim 38, Turnblad et al. further disclose a treated seed of Claim 1 (col. 2 lines 44-46).

As to Claim 39, Turnblad et al. further disclose corn seed ((col. 4 line 24).

As to Claim 40, Turnblad et al. further disclose a method of protection (col. 6 lines 7-32).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-6 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turnblad et al. (US 5,849,320; 6th US patent doc. on Applicant's IDS) in view of Tunde et al. (GB 2110518 A).

As to Claim 3, the limitations of Claim 1 are disclosed as described above. Turnblad et al. further disclose for the film weight to seed weight the ratio from 1:10 to 1:50 (col. 6 line 44-45). Not disclosed is the polymer in the in composition from 0.5 to 25%. Tunde et al., however, disclose an insoluble polymer in a seed coating composition from 10-25% ("casein" at page 1 line 86; page 2 line 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Turnblad et al. by having the polymer in the in composition from 0.5 to 25% as disclosed by Tunde et al. depending upon use of the composition.

As to Claims 4 and 5, the limitations of Claim 3 are disclosed as described above. Tunde et al. further disclose the composition at from 5-11% (page 2 line 5). Not disclosed is weight

ratio from 1:18 to 1:21. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Turnblad et al. as modified by Tunde et al. by having the ratio of weight of film to seed from 1:18 to 1:21 so as to optimize the seed coating.

As to Claim 6, the limitations of Claim 2 are disclosed as described above. Not disclosed is a non-migrating surfactant. Tunde et al., however, disclose a non-migrating surfactant ("polyhydroxy alcohols" of page 2 line 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Turnblad et al. by adding a nonmigrating surfactant as disclosed by Tunde et al. so as to have a softening effect (see Tunde et al. at page 2 line 71).

As to Claim 37, the limitations of Claim 5 are disclosed as described above. Not disclosed is the non-migrating surfactant from the selected group. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Turnblad et al. as modified by Tunde et al. by using a non-migrating surfactant from the selected group depending upon price and availability.

Claim 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turnblad et al. (US 5,849,320; 6th US patent doc. on Applicant's IDS) in view of Tunde et al. (GB 2110518 A) in further view of Luvitec advertisement.

As to Claim 7, the limitations of Claim 6 are disclosed as described above. Not disclosed is the polymer and the surfactant having a pre-selected range for a glass transition temperature thereby retarding the release rate of the active ingredient. The Luvitec advertisement, however, discloses known glass transition temperatures for PVP (Table at page 8) It would have been

Art Unit: 3643

obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Turnblad et al. as modified by Tunde et al. by using Luvitic polyvinylpyrrolidone as disclosed by the Luvitec advertisement depending upon available source of PVP. The Luvitec PVP has a known glass transition temperature.

Claims 25-29, 31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turnblad et al. (US 5,849,320; 6th US patent doc. on Applicant's IDS).

As to Claims 25 and 26, the limitations of Claim 24 are disclosed as described above. Not disclosed are the particles of the active in the form of a particle with a size of 2 microns in a suspension. Examiner takes official notice that it is old and notoriously well known in the agricultural chemical art to have liquid suspensions with particles the size of 2 microns. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Turnblad et al. by having the particles of the active in the form of a particle with a size of 2 microns in a suspension depending upon the active ingredient used.

As to Claims 27-29, the limitations of Claim 25 are disclosed as described above. Not disclosed is the active in the liquid suspension in a conc. of 1-3%. Examiner takes official notice that it is old and notoriously well known in the agricultural chemical art to have liquid suspensions with the active in the liquid suspension in a conc. of 1-3%. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Turnblad et al. by having the active in the liquid suspension in a conc. of 1-3% suspension depending upon the active ingredient used.

Art Unit: 3643

As to Claim 31, the limitations of Claim 1 are disclosed as described above. Not disclosed is the liquid an aqueous/nonaqueous mixture. Examiner takes official notice that it is old and notoriously well known in the agricultural chemical art to have an aqueous/nonaqueous liquid. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Turnblad et al. by having the active in an aqueous/nonaqueous the liquid suspension in a conc. of 1-3% suspension depending upon the active ingredient used.

As to Claim 33, the limitations of Claim 32 are disclosed as described above. Not disclosed is the seed with a transgenic event. Examiner takes official notice that it is old and notoriously well known in the agricultural biotechnology art to produce crop seed, especially corn, with a transgenic event. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Turnblad et al. by using transgenic seed so as to impart herbicide resistance to the plants.

Allowable Subject Matter

Claims 8-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 28 October 2003 have been fully considered but they are not persuasive. Applicant argues are: (1) Turnblad et al. does not teach the step of "applying to treated seed a film comprising an emulsion of a polymer (Examiner uses polyvinylpyrrolidone)

Art Unit: 3643

in a liquid in which both the agricultural active ingredient and the polymer have low levels of solubility” (language from Claim 1) because Turnblad et al. does not teach that the polymer used in the “overcoating” of Turnblad et al. must have a low level of solubility in the liquid in which it is suspended and that it must be applied in the form of an emulsion, as required in every one of the presently rejected claims (Remarks page 12, 1st complete para.); (2) Turnblad et al. does not teach imidacloprid in relation to the overcoating and no disclosure of imidacloprid’s solubility in the emulsion (Remarks page 12 2nd complete para.); (3) Trunde et al. does not disclose the amount of coating film to be applied to a seed and therefore it does not disclose the combination of amount of coating film applied to a seed plus the concentration of the polymer in the film (Remarks page 13 1st complete para.); and; (4) Robeson does not disclose a particular glass transition temperature (Remarks page 14 4th complete para.).

As to argument (1), Turnblad et al. disclose “polyvinylpyrrolidone” at col. 6 lines 30-31. Turnblad et al. further discloses “a film-forming composition for enveloping coated seeds” (at col. 6 line 16) which can be “paraffin oil” (at col. 6 line 27) mixed with water soluble ingredients, for example, “water soluble . . . polysaccharides” (at col. 6 lines 27-28). The water and paraffin oil, synonymous with mineral oil, would form an emulsion. Polyvinylpyrrolidone is known to have low solubility in mineral oil (see table on page 7 of Luvitec advertisement).

As to argument (2), the language of Applicant’s Claim 1 does not disclose the agricultural active ingredient in the emulsion. The language of Claim 1 discloses the active ingredient having low solubility in the emulsion. Because of imidacloprid’s low K_{ow} value (Table on page 27 of “Insecticide Market Trends . . . Implications”), imidacloprid is considered

Art Unit: 3643

to have a low solubility in a water oil mixture. A motivation to create a mixture of water and oil for the overcoating of Turnblad et al. is to "extend" the overcoating by "diluting" with water.

As to argument (3), Turnblad et al. discloses some percentages of the weight of the film applied to seed at col. 6 lines 44-47. Tunde et al. is used to disclose the concentration of material in the overcoating. Since both references deal with seed coatings the combination is proper.


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. MSDE Data Sheet for paraffin oil discloses in the art that paraffin oil is synonymous with mineral oil.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Jeffrey L. Gellner whose phone number is 703.305.0053. The Examiner can normally be reached Monday through Thursday from 8:30 am to 4:00 pm. The Examiner can also be reached on alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Peter Poon, can be reached at 703.308.2574. The official fax telephone number for the Technology Center where this application or proceeding is assigned is 703.872.9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.1113.



Jeffrey L. Gellner